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Southern Botanists.*

By F. Lamson-Scribner.

Ladies and Gentlemen: At this season (March 26th) there may be found in our rich woodlands, brightening the deep shades with its pure white flowers, a little plant known to botanists the world over as *Jeffersonia.*

A more delicate tribute cannot be paid a worker in the science of botany than to name for him some new or undescribed plant. Only those who by their direct labors have increased our knowledge of the vegetable kingdom, or who have in some way materially aided in the advancement of the science, have been thus honored.

It is the purpose of this lecture to pass in review some of those who have been thus distinguished in the annals of American botany, or who have thus become identified with the plants of the Southern States. The number is far too great for all to be included in a popular lecture, nor can I claim your time to say all that I would like to say of those even who are ranked most prominent.

Jeffersonia diphylla commemorates one whose name and fame are so well known to all that I scarcely need more than mention him. Although Jefferson was not a botanist, his recognition of the science and the successsul encouragement which he gave to its prosecution will ever be remembered by botanists in the plant which bears his name. In the development of our nation and national politics this name will ever stand among the first and foremost, and in the development of natural history in America it holds a no less prominent position. "It is probable," says G. Brown Goode, "that no two men have done so much for science in this country as Jefferson and Agassiz; not so much by their direct contributions to knowledge as by the immense weight they gave to scientific interests by their advocacy."†

To Jefferson's interest and influence was due the organization of the first government exploring expedition, that of Lewis and

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* A lecture delivered at the University of Tennessee, March 26, 1889.

† "The Beginnings of Natural History in America." Liberal use has been made of this address by Prof. Goode in the preparation of this lecture. F. L. S.

Clark, into the far Northwest—the precursor of all like enterprises carried on by the general government, culminating in the present magnificent Geological Survey,

A little incident illustrating Jefferson's scientific enthusiasm is thus related. On going to Philadelphia to be inaugurated Vice-President, he carried with him a collection of fossil bones which he had obtained in Green Brier county, Virginia, together with a paper in which were formulated the results of his studies upon them. This was published in the Transactions of the American Philosophical Society, and the animal which the bones illustrated is still known as Megalonyx Jeffersoni. The spectacle of an American statesman coming to take part as a central figure in the greatest political ceremony of our country, bringing with him a lot of bones and an original contribution to science is one long to be remembered, and is not likely soon to be repeated. Botanists have done well to preserve in their special field the memory of this man, remarkable as he was great.

A tropical American genus of woody climbers, Banisteria of Linnæus, was dedicated to John Bannister, who settled in Virginia some time prior to 1668, and who published in 1686 a "Catalogus Plantarum in Virginia Observatarum," which was the first systematic paper upon natural history emanating from America. He was an artist, for with his notes and dried specimens transmitted to Bishop Compton and John Ray, of England, he sent drawings of the rare species which he found. Ray says of Bannister in his "Historia Plantarum," "erudissimus vir et consummatissimus Botanicus."

The memory of John Bannister is still cherished in Virginia where his descendants are numerous.

That attractive little spring flower *Claytonia Virginiana*, which enjoys the honor of having been the first to fall into the hands of Dr. Gray, when a student, to be analyzed by him, and which with one or two others disputes the right to be recognized as the "May Flower" of our ancestors, keeps fresh in our memories one of the earliest devotees of botanical science in America, John Clayton, of Virginia. For fifty years Clayton was clerk of Gloucester county and during all this period he spent a great deal of time in exploring the region about him and in describing the plants which he found.

He was a correspondent of Gronovius and also of the great Linnæus, both of whom afforded him much aid in his botanical pursuits. Clayton's "Flora Virginiana," the first of its kind in this country, began to appear in 1739, subsequent portions being published in 1743 and 1762. At the time of his death he left two volumes of manuscripts, and an herbarium with marginal notes and references for the engraver who should prepare the plates for his proposed work. All this material, the result of many years of labor, was destroyed by fire during the Revolutionary War, and thus perished what was probably one of the most important works on American botany written before the days of Gray and Torrey.

The author of the first work written in America on the principles of science (Botany and Zoölogy), was, like Clayton, a resident of Virginia. The low-creeping, evergreen vine, known to every one as Partridge-berry, was named by Linnæus in honor of this author, Mitchella repens. Dr. John Mitchell was born in England, but he early came to Virginia where he spent nearly fifty years practicing medicine and promoting science. He was a man of broad culture and was one of the earliest chemists and physicists in America. His political and botanical writings were numerous and were always well received, and Mitchell's map of North America is still an authority in boundary matters. It has been said of Mitchell and Clayton that together they gave to the botany of Virginia a distinguished lustre.

Mark Catesbey spent a dozen years in Virginia and the Carolinas, from 1712 to 1725, collecting and making paintings of birds and plants, and his magnificent, illustrated work on the Natural History of Carolina, Florida and the Bahamas, is still of very great value to students. A Rubiaceous genus of the Antilles perpetuates his name.

John Bartram, whose home was near Philadelphia, but who extended his botanical explorations into some of the Southern States, was styled by Linnæus "the greatest natural botanist in the world." He was made botanist to His Majesty for the Floridas by George III., and was given a pension of 50 pounds a year. He was a collector rather than an investigator, and did botany great service by supplying plants and seeds to Linnæus and other European botanists. He is best remembered in the so-called Bartram oak, Quercus heterophylla, and in the unique botanic garden which he established on the banks of the Schuylkill, near Philadelphia.

An herbaceous plant of the Old World, Michauxia, commemorates the author of the first "Flora of North America," and the most untiring explorer this country has ever seen. Although André Michaux the elder cannot be ranked as a Southern botanist, as he spent only a few years in the Southern States, he so identified himself with our flora, and being the first botanist to cross the mountains, in 1795, from the East into Tennessee and Kentucky, that we cannot pass him wholly unmentioned.

Of the 1700 species of plants enumerated in Gattinger's "Tennessee Flora," over 135 were originally described and named by Michaux, and many of these were found by him, some for the first time, within our State limits. Michaux, with his son's assistance did more than any other man to diffuse a knowledge of our forest trees, particularly the oaks. His "Flora" was published in 1803.

Passing over a number of names scarcely less noteworthy than those already mentioned, we come to those who have been most active in the investigation of Southern plants within the present century.

A yellow-flowered composite plant of the sand hills of Georgia and Florida, named by Nuttall, *Baldwinia multiflora,* calls up before us one of our pioneers in the field of botany, Dr. William Baldwin. Dr. Baldwin was born in Pennsylvania in 1779, educated at the University of that State, and in 1811 removed to Georgia. He was a man much beloved by his associates, of whom Stephen Elliott was one, and was possessed with a most amiable character. He studied very minutely the difficult family of sedges, and the yet more difficult genera of grasses, *Paspalum* and *Panicum.* One of his best botanical papers was published in the Trans. Am. Phil. Soc., of Phila., and another in the American Journal of Science, the first relating to sedges, the second to grasses. He was appointed botanist to the expedition under Maj. Long, but his health, never very strong, failed completely during the journey to the field, and he died at Franklin, Mo., in the forty-first year of his age. His collections of Southern plants are now in the Herbarium of the Acd. Nat. Sci., of Phila., where they are guarded with care and justly prized.

Muhlenberg, in Nuttall's "Genera Plantarum," did honor to one of the most distinguished of our early botanists by naming for Stephen Elliott, a shrub of the Heath family, which grows in the dry, rich soils of Southern Georgia, *Elliottia racemosa.* Elliott was born at Beaufort, S. C., in 1771. He was educated at Yale, and while a senior in college he was spoken of as being possessed of more science and general information than was often found in one of his age and standing. He graduated with one of the highest honors, and returning home applied himself to agricultural pursuits. The people of his State, recognizing his marked ability, elected him first to the State Legislature, and then to the Senate. While a member of the latter body he took a leading part in all important business, and was the originator of the "free school system" of South Carolina, and the Bank Bill creating the "Bank of the State."

He was for a time President of the South Carolina College and later Professor of Botany and Natural History in the Charleston Medical College. He was the first, and during his lifetime the only President of the Philosophical Society of Charleston. The versatility and vigor of Mr. Elliott's mind may be seen in the variety of attainments in which he excelled. Beginning his career as a legislator, in which capacity he served for many years, he took prominent and leading parts in many of the important measures of his day. And it was while engaged in public and in engrossing financial business that he found time for literary and scientific pursuits, which alone would have placed him in the foremost rank among men of letters.

Botanists remember and esteem Elliott for his grand work entitled a "Sketch of the Botany of South Carolina and Georgia," published in two volumes in 1821 and 1824. The technical descriptions of the species enumerated are given in both Latin and English, and these in each case are followed by a more extended account in English in which are given the habitat, time of flowering, local names and often the reputed medicinal properties and other points of historical interest. The whole work, embracing

1349 pages, together with a dozen finely executed plates illustrating 48 species of sedges and grasses, exhibits great scientific accuracy and an unusual amount of care in its preparation. Such was the work which the author modestly styles a "sketch." It was the chief authority among botanists for this latitude prior to the appearance of Chapman's "Flora of the Southern States," in 1860, and to-day it is one of the works which all working botanists feel that they must possess or be able to consult. Until one has written a book, and especially a book where almost every line is the statement of a fact learned, for the most part, from original observation, can they appreciate the amount of patience and labor involved in the preparation of such a work as Elliott's "Sketch of the Botany of South Carolina and Georgia."

In the preface to the second volume, Elliott, in acknowledging his indebtedness to others for assistance, briefly refers to several botanists who come within the scope of this lecture, and I cannot do better than to quote Elliott's own words in speaking of them. "To those who have aided in collecting the plants from which this sketch has been compiled, the author feels his manifold obligations; he wishes to express them particularly to Mr. James Jackson, of Louisville, Ga., from whom he has received many new and many rare plants and whose notes have always rendered his specimens more valuable. To Samuel Boykin, of Milledgeville, who, residing in a most interesting district of country, has added much to the author's knowledge of its flora by the valuable collections of specimens occasionally sent him.

"To Mr. N. Herbemont, of Columbia, S. C., for many specimens of rare plants collected around Columbia and in the upper districts of Carolina.

"To Dr. William Baldwin, of the United States Navy, a botanists of distinguished talents and indefatigable activity, who while residing in the southern districts of Georgia, communicated many new species published in the earlier portions of the "Sketch."

"But principally to the late Dr. James McBride, a tribute is due, not only for the services which he himself actually rendered, but for the contributions which he induced others to offer. Devotedly attached to science, he had the talent to make it popular wherever his influence extended. Profoundly skilled in his profession and high in the confidence of his fellow citizens, he fell a victim to the fatigues and exposure of an extensive practice. In the midst of a brilliant career, with prospects of increasing usefulness and extended reputation, he died at the early age of 33."

In dedicating to this gentleman the genus, *Macbridea*, Elliott says, "I have named this genus in commemoration of the late Dr. James McBride, whose untimely death, medicine and natural history and an admiring country equally deplore."

There are a number of plants in our flora, both among phanerogams and cryptogams which have been named for Rev. Moses A. Curtis, of North Carolina, a most acute botanist and a gentleman whose character and ability reflect honor upon the State in which he lived. Curtis was born in Berkshire county, Massachusetts, in 1808, and at the age of 22 came to Wilmington, N. C., as a tutor in the family of Governor Dudley. He began at once to devote himself to the study of the flora of that region, which was especially rich and interesting. Close up to the village reached the pine forests, abounding in strange plants that charmed the eye and filled the portfolios of the enthusiastic young botanist. His quick eye and assiduity may be judged by the fact that in little more than two seasons during his brief hours of leisure he made a collection of over a thousand species, or rather more than half the number described in Elliott's Botany. The result of these two years' investigation appeared in 1834, in Curtis's "Enumeration of the Plants Growing Spontaneously around Wilmington, N. C.," published in the Boston Journal of Natural History. This first contribution to botany by Dr. Curtis was more than a mere catalogue, and it attracted the favorable notice of his teachers and correspondents. It was so thorough that after the lapse of half a century only about 50 species have been added to his list. Among some of the new plants which he found near Wilmington was the curious and very local *Dionæa muscipula*, or Venus fly-trap. Week after week he would visit the savannas, and, lying at full length upon the ground, would watch the peculiarities of this plant, and the description which he gave of its habits in his first published work has been many times quoted during the last 50 years, showing that he possessed the gift of accurate and entertaining description to a marked degree.

In 1835 Curtis was ordained to the ministry of the Episcopal Church and immediately entered upon mission work in Western North Carolina. He spent a year in this work, and while thus engaged he took advantage of his journeying in the solitary woods to pursue his botanical researches. He traveled mostly in a sulky which was so arranged that his collecting portfolios could be placed under the cushion of the seat. As he came across specimens he would gather them, put them into the portfolios, and so by the end of his journey he had secured a goodly number of ready pressed plants for future study or for mounting in his herbarium. In 1849 he again visited the mountain region, and in 1841 it was said of him by Dr. Gray that "no living botanist was so well acquainted with the vegetation of the Southern Alleghany mountains, or has explored those of North Carolina more extensively."

Dr. Curtis' method as a student was that of a broad-minded scientist; just to name a flower and preserve it was to him but the beginning of his work. His earliest records show that he studied the relations of plant life to geologic and climatic surroundings. The study of botanical geography was begun with his career as a botanist and continued throughout, extending over 38 years. The account he gives us in his "Woody Plants" is to-day the best guide to the natural climatological divisions of the State which has ever been published. He also directed his attention to the numerous economic questions which met him in his intimate acquaintance with the treasures of the field and forest. It was this feature of his labors alone which brought him an audience in his adopted State. His "Woody Plants," published as a part of the State Geological and Natural History Survey in 1860, at once became a popular manual for the farmer and the woodsman, and for the amateur botanist a key to the more conspicuous trees and shrubs useful for their fruit or timber or as ornaments. The preface of this little work is an introduction to the geographical distribution of plants in the State and shows what a thorough acquaintance its author had with the broad subject.

Although Dr. Curtis is known as a man who was intimately acquainted with the flowering plants of the South, it is through his great knowledge of cryptogams, especially of fungi, that he became most widely known and justly famous. This very difficult branch of botany had few votaries in Curtis's time, and there was no text-book on the subject published in America. Provided, however, with the two well-known works of Schweinitz, Curtis addressed himself to what was for him a labor of love. He was painstaking and accurate in his methods, and the microscopic work necessary for the determination of species became with him a triumph of skill. Few were the botanists with whom he could compare specimens or exchange notes. He pursued this specialty without the stimulus now offered by special societies, and for the greater part of his career absolutely without an audience. It was intense love for the work which led him up to the highest station occupied by any American botanist. Dr. Curtis gave particular attention to the edible species of fungi. He communicated to the "Gardeners' Chronicle" for October 9th, 1869, an article on the "Edible Fungi of North Carolina," and left in manuscript a very complete illustrated work on "Esculent Fungi." Every one knows the palatable and wholesome character of the common mushroom or pink gill, but few are aware that there are other kinds growing in our fields and woods that are more finely flavored and just as wholesome. In his catalogue of the plants of North Carolina, Curtis indicates 111 species of edible fungi known to inhabit that State, and he remarks elsewhere that he has no doubt that there exist 40 or 50 more.

In a letter to Berkeley, of England, Curtis writes: "In October, 1866, while on the Cumberland Mountains in Tennessee, although with little leisure for examination during the two days spent there, I counted 18 species of edible fungi. Of the four or five species that I collected for the table, all who partook of them declared them most emphatically delicious. On my return home, while stopping a few hours at a station in Virginia, I gathered eight good species within a hundred yards of the depot. And so it seems to be throughout the country. Hill and plain, mountain and valley, fields and pastures, swarm with a profusion of good nutritious fungi which are allowed to decay where they spring up, because people do not know how, or are afraid, to use them."

In 1867 the State published as a part of the Geological and

Natural History Survey, a " Catalogue of the Indigenous and Naturalized Plants of North Carolina," by Dr. Curtis. This Catalogue included 4,800 species, and was the first attempt made by any botanist in this country to enumerate the cryptogams as well as the flowering plants, and its appearance was a matter of much scientific congratulation. This work was the result of 25 years of botanical study over a territory of 50,000 square miles.

The most important purely scientific papers of Dr. Curtis were his contributions to the mycology of North America, published in several volumes of Silliman's Journal.

A genus of plants, *Ravenelia,* belonging to the same family as the rust of wheat, perpetuates the name of Dr. Henry W. Ravenel, of South Carolina. At the time of his death, less than four years ago, there were among American botanists none more respected and beloved and few whose scientific work covered so many years of activity.

Born with a fondness for natural history, Ravenel pursued his botanical studies with great earnestness and enthusiasm during the whole of his long life. He made extensive collections of plants, but he was no ordinary collector, heaping up rough material to be exchanged for specimens to be counted rather than studied. He was a most accurate observer, and always noted the habits and peculiarities of the plants he gathered. There was not a group of plants, no matter how small, which escaped his observation. He not only studied critically the phanerogams of his State, but he collected and studied as far as it was possible in his time and in a region remote from large libraries, mosses, lichens, algæ and fungi. He was a zealous follower of Dr. Curtis, and became recognized as authority on the species of fungi in the Southern States, for no one possessed such an intimate acquaintance with them. He discovered many new flowering plants and a surprisingly large number of cryptogams. His interest in the latter group brought him into correspondence with the leading mycologists of Europe, and Ravenel became nearly as well known abroad as at home. He is best known to the botanists of to-day by his published sets of fungi, a dozen volumes or more, which are now rare and exceedingly valuable. His writings are not numerous, but they are characterized by thoroughness and indicate an active mind which went beyond mere descriptions and inquired into causes as well as results. His work was not solely for the scientific world; he was for many years botanist to the State Board of Agriculture and an editor of an agricultural paper. His popular articles on the grasses of the South are of special interest and value, for he devoted much attention to these plants and appreciated their agricultural importance. He is spoken of as having been a man whose life was full of kindness to all about him and an example of what a botanist should be.

Among the Southern botanists who have worked in this field and become identified with Southern plants are many who have attained distinction through their labors, but of whom I have not the time to speak. I must, however, mention the names of Lindheimer and Fendler, whose collections have become classical through the publication of Engelmann and Gray; of William F. Feay, of Georgia, whose devotedness to botany led to a number of interesting discoveries; of Prof. John L. Riddell, who for many years resided at Mobile, and whose name is indelibly associated with botany through the genus Riddellia; of S. B. Buckley, who discovered and published many new species of Southern plants, and for whom *Buckleya distichophylla*, a graceful Santalaceous shrub of the mountains of North Carolina was named; of Dr. C. W. Short, of Kentucky, justly famous in his time and whose services were recognized by Dr. Gray in that extremely rare plant found only near Roan Mt., *Shortia galacifolia;* of John Williamson, of Kentucky, the artist botanist whose "Fern Etchings" gained him a world-wide reputation; of Le Conte, of Georgia, who monographed our species of the genus *Paspalum;* and lastly, but by no means least, of Dr. Engelman, of St. Louis, Mo., whose botanical works placed him in the first rank of men of science and whose publications will always be essential to every working botanist.

Passing over these thus briefly, we come to those who are yet living and still active in the cause.

We cannot omit speaking of Judge M. Thomas Peters, of Moulton, Ala., although he is no longer actively engaged in botany. Judge Peters was one of the first to draw the attention of botanists to the ferns of his State and was the discoverer of that beautiful little species named in his honor, *Trichomanes Petersii.*

There are numerous private as well as public herbaria, both in this country and in Europe, that owe many of the treasures they possess to the kindness and generosity of Judge Peters. He brought to light that rare and curious sedge, *Carex Boottiana*, and he was one of the earliest students of the fungi of Alabama. His collections of this class of plants as well as his botanical library he donated to the Alabama State University.

The discoverer of the very rare *Neviusia Alabamensis*, the Rev. R. Nevius, should be named in passing, although he is now stationed on the Pacific coast. He communicated many interesting Southern plants to Dr. Gray, and in his new field of labor he is continuing his botanical studies, paying particular attention to mosses.

Louisiana is at this time the fortunate possessor of a most industrious and acute botanist in the person of Rev. A. B. Langlois, of St. Martinsville. Mr. Langlois was born in France in 1832, and he began his botanical studies in that country, for before coming to America in 1855, he had made an herbarium of some 1200 species. He spent nearly two years in Cincinnati completing his ecclesiastical education, and then located at Point-a-la-Hache, La., where he remained for thirty years. The locality being near the delta of the Mississippi was one of peculiar botanical interest, and Mr. Langlois succeeded in discovering many rare and some new species of plants. Langlois has carried on his botanical studies under circumstances which would have deterred many from undertaking them. He has been entirely cut off from botanical associates, and the climate of his region is so moist as to render the drying of specimens most difficult. Upon going to Point-a-la-Hache, he at once renewed his botanical work, but being entirely without books and wholly unacquainted with any American botanist, he sent his first collections, numbering some 300 species, to France to be named, but he never heard from them or received one word of encouragment. Evidently disheartened he dropped the study of plants for twenty years, a period which he now looks upon with deep regret. In 1878 he began again the study, first with only Wood's "Manual," and then with Chapman's "Southern Flora." Langlois thus relates his progress from this time, "By accident I learned that there was a botanist, Dr. Puissant, at the Ecclesiastical Seminary of Troy, N. Y., and I immediately wrote to him offering Southern plants for Northern ones, and I received from the doctor about 500 species. Soon after I found out there was published here a "Botanical Gazette," for which I immediately subscribed. From this journal I learned many things unknown to me before; through its advertisements I got plants from Eggert, of Missouri, Pringle, of Vermont, and a check-list from Patterson, of Illinois. Then I began to know and appreciate the advantages of having correspondents. The ones who have been of greatest service to me in phanerogams are Morong, of Massachusetts, Wibbe, of New York, and later, J. Donnell Smith, of Baltimore. In grasses I have been assisted by Dr. Vasey, of Washington, and in Cyperaceæ by Connant.

"In 1884, through the kindness of Mr. Lehnert, of Washington, I began the study of mosses, liverworts and lichens, and in the latter part of 1885, at the suggestion of Mr. Scribner, I began the study of fungi. I soon acquired a deep interest in these plants, and have been greatly aided in their study by Prof. Ellis, of New Jersey. The mycological flora of Louisiana being so rich and at the same time so poorly known, I have for the past three years given almost my entire attention to it. Every day I make new discoveries, and I am yet far from having exhausted this intensely interesting part of the Louisiana flora." Mr. Langlois has now an herbarium containing some 5000 species of North American plants, including 1214 species of Phanerogams and vascular cryptogams of his State. So far as his State is concerned, this work has been done single-handed. About a year ago, Langlois published a catalogue of Louisiana plants which embraced the fungi he had found, now numbering 1200 species. Langlois' collections are widely distributed in the herbaria of this country and in France, and his specimens are highly valued by all who possess them.

I have been thus particular in speaking of Mr. Langlois, not only to show the interest that may be acquired in the study of botany, but also to show what may be accomplished under conditions most adverse. Mr. Langlois is now rector of St. Martin's church, St. Martinsville, La.

For many years botanists of this country, when they have wished specimens of Southern plants or have desired to learn more about them, have turned by almost common consent to Dr. Chas. Mohr, a druggist of Mobile, Alabama, a German by birth. An assiduous explorer and collector, an acute observer of plants and a generous correspondent, freely communicating to others the results of his labors, Dr. Mohr has won the esteem and confidence of all American botanists. Nor is his reputation confined to this side of the Atlantic, for some of his botanical communications to the German scientific journals have been translated into all the leading languages of Europe. What he has accomplished for the science of botany has been done in the hours of recreation which he could command in a pretty hard struggle for an existence in his calling as pharmacist. During the first years of his residence in this country, from 1857 to 1865, he devoted the limited hours he could spare for rest or recreation to the study of mosses, and the specimens he collected of these plants were sent to the leading bryologists of this country and Europe. He greatly assisted Lesquereux and James by furnishing material for their work on the mosses of North America, and the many new species which he found were published in the BULLETIN OF THE TORREY BOTANICAL CLUB under the title of "Contributions to the Bryology of the United States."

In 1886 Mohr acquired the valuable herbarium of Dr. J. Riddell, of Louisiana, author of a " Catalogue of the Plants of Louisiana" and of a "Synopsis of the Plants of the West." This herbarium contained the extensive collections of Dr. Josiah Hale, of Alexandria, Louisiana, as well as those of Prof. W. M. Carpenter, and was to Mohr " a mine of wealth and information." At about the same time he had placed in his hands for determination the valuable collection of Dr. Denney, of Luggsville, La., from which he got a glimpse of the richness of the arboreal flora of Southern Alabama beyond the pine belt proper. The study of this collection inspired him with a special interest in woody plants and in forestry, and his work in this field of botany now stands second to none. The results of a season spent in the field of 1877 form the chapter on the "Forests of Alabama," published in 1878 in Birney's Handbook. This paper more systematically arranged, corrected, and new points of special interest to the subject added, was afterwards published separately.

For a time connected with the State Grange, Dr. Mohr directed his attention to the grasses and forage plants, with particular reference to those best adapted for cultivation in the coast region of the Gulf States. In this connection he first pointed out the value of Mexican clover and Lespedeza striata. His investigations on these plants were fully published in the reports of the U. S. Department of Agriculture. He also communicated frequent articles to the local papers on this and kindred subjects.

Many interesting waifs from foreign countries have been introduced on ship's ballast around Mobile, and the studies Mohr made of these plants led to the publication in the "Botanical Gazette" of a paper "on the plants introduced into the Gulf States." Further experiences on the same subject gained during the succeeding ten years furnished the theme for an article published last August in the "Pharmaceutical Revue" (German), on "Plant immigration in the Southern States through the aid of animals or accidently by man."

In 1880 Dr. Mohr was called upon by Prof. Sargent to undertake the investigation of the forests of the Gulf States, in regard to their timber resources and other products and the industries dependent on them. This work kept him engaged in the field during all of one season and part of another. The results of his observations were reported to Prof. Sargent and published in the ninth volume of the Tenth Census report. While in the field Mohr discovered several new species and rediscovered a number that had long been lost sight of. His observations also furnished him materials for an article on forest trees of the Gulf region published in Vol. I of the American Journal of Forestry, and another on "The Forests of the South and their Bearing upon the Interests of Agriculture," which was read at the meeting of the Southern Interstate Immigration Association at Nashville.

In 1878 Prof. E. A. Smith, of the State Geological Survey, placed in Dr. Mohr's hands the plants he had collected during his field work, and from that time dates Mohr's undertaking to get up an herbarium for the Survey to be placed in the museum of the University of Alabama. Uniting his own collections with those of Prof. Smith as a basis, the work has progressed so that now the herbarium contains something over 2200 species of flowering plants and ferns, nearly completely illustrating the entire State Flora.

In 1882 or 1883, Dr. Mohr was engaged by the Louisville R. R. Co. to collect and report upon the products of the forest and fields along the line of its road within the State. The collections made formed a most interesting and attractive feature in the Exposition held at Atlanta and at Louisville, and in 1884–85 they were again exhibited at New Orleans. An account of the material gathered was published in a pamphlet entitled "The Natural Resources of Alabama," one of the few papers of its kind which possesses real scientific merit and in no way can mislead the reader or prospective settler.

A paper on the "Resiniferous Pines of the South and the Manufacture of Naval Stores," published in the *Pharmaceutical Review*, attracted the attention of the present chief of the Forestry Division of the U. S. Department of Agriculture and led to the engagement of Mohr to prepare for the Department a series of exhaustive monographs on the Southern pines of economic importance, to form a part of a report to be devoted to the biology of North American timber trees.

Mohr is possessed with a true scientific spirit and great enthusiasm in his botanical work. By the amount he has accomplished it is very evident that he has well improved his hours of leisure and doubtless stolen much time from his hours of needed recreation. But in this day and generation one cannot stop to recreate, for if he does, some more zealous worker will win the prize he seeks. Success from true merit seems now to depend upon one's powers of endurance.

Mohr has the distinction of having gone out of the beaten track of systematic botanists and considered the plants he studied from an economic aspect. He has not only increased the sum of our knowledge, but he has added to our powers of direct usefulness. I would say to those who, in referring to botany, are ever asking the question "*cui bono?*" carefully read the writings of Dr. Mohr; they afford a most able answer.

A leguminous plant found only in Florida was named by Drs.

Torrey and Gray, *Chapmania*, in honor of him who is now the oldest of living botanists, Dr. A. W. Chapman, of Appalachicola, Florida.

On the 16th of May, almost sixty years ago, there landed at Savannah, Georgia, a young man from New England, who has since gained a world-wide reputation as a botanist and become more than all others identified with the plants of the South. The day following his arrival, in a stroll beyond the city limits he found that curious pitcher plant, *Sarracenia variolaris*, and with the aid of Eaton's "Manual" he determined its name. This was the starting point of a botanical career which culminated in 1860 in the production of Chapman's "Southern Flora."

In 1835 Dr. Chapman settled in Florida, where he has since resided, and during all these years his interest in or love for his chosen science has never for a moment flagged. He has always been isolated from association with botanists, if we except the brief companionship which he enjoyed with Mr. H. B. Croom, whose botanical services have been commemorated in the genus *Croomia;* but he has numbered among his correspondents all the prominent botanists in this country and many in Europe. Only seven of these were ever known to him personally, and he has outlived them all.

Dr. Chapman thus writes me, by request, concerning the origin of his principal publication—the "Southern Flora." He says:

"I believe the 'Flora' owes its existence to a suggestion of mine to Dr. Curtis about the year 1856, that we needed for the South a work something like what Gray had made for the North, and that he (Curtis) was just the man to do it. But at that time his hands were full of toadstools and he was rusty among the Phanerogams, and so turned over the matter to me, while promising every assistance in his power if I would undertake the job. My time also was fully occupied with my professional duties during the day, but I concluded to try my hand at it, after office hours, by way of experiment. Well, I succeeded better than I had anticipated, and was encouraged to go on, and so night after night, from 9 to 12 or 2 o'clock, for nearly three years, until 'Finis' was reached, found me at work. In the summer of 1859 I took my manuscript to Cambridge and consulted with Gray about further proceedings, the result of which was that I concluded to be my own publisher. I went to the University Press, selected the neat typography in which the work is dressed and set the printers to work—remaining with Gray, proof-reading and correcting until November, when I turned the concluding pages over to Prof. Eaton and came home. The work was issued just before the war began, and I heard nothing more of it for four years, when Dr. Gray smuggled through the lines a budget of friendly notices of the work which appeared during those years in the periodicals of this country and Europe, and all at once I awoke to bigness."

Since 1860 Dr. Chapman's Flora has been the standard botany for the Southern States, ranking with Gray's "Manual" for the States of the North. Early in 1883 Dr. Chapman published a reprint of the work, to which he added a supplement in order to include the many plants discovered within the range covered by the Flora, particularly in Florida, since the publication of the first edition. And now at the advanced age of 80 years, the doctor is actively engaged in the preparation of another edition of his Flora to meet the changes which have been made in recent years in systems of arrangement and in nomenclature. It was only the other day that I received a letter from him asking the loan of some specimens from the Gattinger Collection in order that he might settle for himself some determinations that had been brought into question. I do not know how far this new edition has progressed, but it is the hope of all botanists that this venerable, most courteous and faithful worker may live to again write the word finis and see the full fruition of his labor.

The rich and varied flora of our own State has been made known to the world by Dr. A. Gattinger, of Nashville, through his publication entitled "Tennessee Flora." Dr. Gattinger came to this State some 42 years ago and was located for a time here in the East, but he soon went to Nashville, where he has since resided. During all these years he has been an industrious collector and close observer of Tennessee plants, making many journeys to inaccessible or out-of-the-way places to discover some variety or increase his knowledge of plant distribution. Quite a number of new species have been found by him and several of these bear his name. His herbarium, of which the University of Tennessee is now the fortunate possessor, was one of the finest private collections in the country. It numbers between three and four thousand species, besides a large stock of duplicates which can be used in making further accessions to the herbarium proper. The Flora of Tennessee and the general Flora east of the Mississippi are well represented in it. The collection has been enriched through exchanges with many prominent botanists, both North and South.

Dr. Gattinger has directed special attention to the grasses of Tennessee, and he contributed the most important chapters in Killebrew's work on these plants.

His "Flora of Tennessee," published in 1887, is a work of excellent merit and at once stamps its author as a botanist of the first order. In speaking of his experience, in the preface to the "Flora," he says "I am yet in possession of specimens collected in 1849, when I first took up my residence in East Tennessee as a practicing physician. Placed as I was in those early days amid unfamiliar modes of life, with no access to intellectual resources, without information about the condition and advance of scientific affairs in this country, my botanical progress could for many years be no other than tedious and slow; but I kept up the pursuit, which since early school years had been to me a source of pleasure and consolation. His "Flora" is based upon botanical collections made exclusively by himself during 38 years' residence in the State. In it some space is given to a description of the physical characters of the State and the peculiar flora of each division, and the habitat and date of flowering of the species enumerated is given. To the students of botany within the State it is indispensable. It has not been my good fortune to meet Dr. Gattinger, but he is a most agreeable correspondent and his letters bespeak a man of high culture and refinement.

He has accomplished much by his industry and passionate love for his chosen work, and there are few names better known or held in greater esteem by the working botanists of the country than that of Dr. Gattinger, of Tennessee.

The list of Southern botanists is a long one, and contains many honorable and even brilliant names. I would that I were better able to speak of them as they deserve, but I have already put your patience to a test, and must now leave the subject with the feeling, which I know is shared by some of you, that "the half has not been told."

Some further Notes upon Serenopsis Kempii.

By Arthur Hollick.

(Plate CLXVI.)

In a previous paper* I described and figured a supposed new fossil palm, from the Cretaceous formation at Glen Cove, Long Island, under the name *Serenopsis Kempii*. Since that paper was published, another specimen, in a better state of preservation, has been found, from an examination of which some additional facts of interest have been obtained.

The two specimens are alike, except that in the one now under consideration there are thin rays or filaments irregularly interspersed between and apparently proceeding from the lower parts of many of the main rays. These are either absent in the original specimens, or else so poorly preserved as to be invisible. They appear to be portions of the main rays which have become separated or split off. It may also be noted that in places there appear to be indications of reticulation between the rays, as if they might have been connected by a membrane. If so it must have been exceedingly thin, and a careful examination of the specimens does does not warrant us in assuming it. I am inclined to think that the filamentous rays and apparent reticulations are merely portions of the main rays which have been partly torn off, leaving fragmentary connections. This appearance is strikingly like that which many palm leaves assume upon approaching maturity. Prof. Lester F. Ward, of the United States Geological Survey, from whom I requested an opinion concerning the probable affinities of the plant, does not think it a palm, but suggests that it is more likely to be allied to the organisms which have been called

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*"A ne Fossil Palm from the Cretaceous Formation at Glen Cove, Long Island" (Bull. Torr. Bot. Club, xx. 168, 169, Pl. CXLIX.).